

AMENDMENT TO THE CLAIMS

1. (currently amended) A man-machine dialogue system comprising an interactive computer system with:
 - an input device for receiving input from a user;
 - an output device for generating output to a user;
 - an object system which is an information source or store, or a command and control device, the object of the dialogue being to interface between this system and a user;
 - a dialogue manager, which controls the dialogue between the object system and a user dependent upon:
 - a dialogue specification, comprising a set of augmented transition networks (ATNs), having a set of states through which are propagated one or more tokens, each token comprising a set of fields which together define at the current state of belief of the dialogue controller for the user's reply to a question posed by the dialogue manager, dependent upon the preceding user-system interchanges and information obtained from the object system.
2. (original) A system according to claim 1, further comprising means for copying and updating the token through each state in an ATN as the dialogue controller passes therethrough.
3. (original) A system according to claim 2, wherein each token is linked to its predecessor, so enabling the dialogue controller to regain a previous state of data maintained at some point during the history of the dialogue.
4. (previously presented) A system according to claim 1, wherein each state is associated with an action or actions, and each action may receive, modify and transmit a token or tokens.

5. (previously presented) A system according to claim 1, employing an ATN to specify the course of the dialogue, and wherein each state may represent a junction, a system action, such as a user interaction, or an embedded dialogue represented by a further augmented transition network.

6. (previously presented) A system according to claim 1, where the input device is a speech recognizer.

7. (previously presented) A system according to claim 1, where the input device is constrained by a set of statistical grammars which may be defined using an ATN.

8. (previously presented) A system according to claim 7, wherein each of the states may represent a junction, a terminal state, such as a word or other acoustical phenomenon, or an embedded statistical grammar represented by a further ATN.

9. (previously presented) A system according to claim 7, wherein tokens are propagated for the user-interaction dialogue state to the start of the input network, and through a best matching path of the input network back to the user-interaction dialogue state.

10. (previously presented) A system according to claim 7, wherein a token is propagated for each alternative input hypothesis considered by the input device, and the score assigned to the hypothesis is a modifiable field of the token.

11. (previously presented) A system according to claim 1, wherein the output device is a speech generator.

12. (previously presented) A system according to claim 1, wherein user output is represented by an augmented transition network.

13. (previously presented) A system according to claim 11, where the states represent an output word or other acoustical or linguistic phenomenon.

14. (original) A system according to claim 12, wherein tokens are propagated from the dialogue user-interaction state to the first user output state, and from each user output state to the start of the input network.

15. (currently amended) A system comprising: according to any of
claims 1 to 14.

an output device for generating output to a user;

an input device for receiving input from a user;

a tool for generating an object system which is an
information source or store, or a command and control
device, the object of the dialogue being to interface
between the system and the user; and

a dialogue manager, which controls the dialogue between the
object system and the user based upon: a dialogue
specification, comprising a set of augmented transition
networks (ATNs), having a set of states through which
are propagated one or more tokens, each token
comprising a set of fields which together define a
current state of belief of a dialogue controller,
dependent upon the preceding user-system interchanges
and information obtained from the object system.

16. (new) A method for controlling dialogue between a computer system and a human user comprising the steps of:

outputting at least one speech signal to the user;

inputting a speech signal from the user in response to
each of the at least one speech signal output to
the user;

propagating at least one token over a set of augmented transition networks, wherein propagating comprises:

applying a dialogue specification to the speech signal input from the user; and updating the at least one token over the set of augmented transition networks, each token comprising a set of fields which together define a current state of belief of a dialogue controller, dependent upon the preceding user-system interchanges and information obtained from the object system.

17. (new) The method of claim 16, wherein generating output to the user comprises asking the user a question, and wherein receiving input from the user comprises receiving the user's answer to the question.
18. (new) The method of claim 16, wherein propagating comprises propagating a token for each alternative hypothesis being considered, and further comprising scoring each alternative hypothesis based on a best matching path through the augmented transition network.
19. (new) A computer-readable medium including instructions readable by a computer which, when implemented perform steps comprising:
 - generating a speech-based output to the user;
 - receiving a speech-based input from the user in response to the generated speech-based output;
 - propagating at least one token over a set of augmented transition networks, wherein propagating comprises:

applying a dialogue specification to the speech signal input from the user; and updating the at least one token over the set of augmented transition networks, each token comprising a set of fields which together define a current state of belief of a dialogue controller, dependent upon the preceding user-system interchanges and information obtained from the object system.

20. (new) The computer readable medium of claim 19, wherein each token further comprises a link to its predecessor, from which the history of the dialogue is obtainable.